CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION

TENTATIVE WASTE DISCHARGE REQUIREMENTS ORDER NO. R9-2005-0183

CLOSURE AND POST-CLOSURE MAINTENANCE OF THE ANZA SANITARY LANDFILL

DRAFT TECHNICAL REPORT

December 14, 2005

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To request copies of Tentative Waste Discharge Requirements Order No. R9-2005-0183, Closure and post-closure maintenance for the Anza Sanitary Landfill, please contact Amy Grove, Engineering Geologist at (858) 637-7136, or via email at agrove@waterboards.ca.gov

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BACKGROUND

This Technical Report provides the rationale and factual information supporting the findings and directives of Order No. R9-2005-0183, *"Waste Discharge Requirements for Closure and Post-Closure Maintenance of the County of Riverside Anza Sanitary Landfill."*

BASIS FOR FINDINGS AND DIRECTIVES

Finding Nos. 7 & 8:

7. In September 2004, the State Water Resources Control Board (SWRCB) adopted regulations that require electronic submittal of information (ESI) for ground water cleanup programs. These regulations gained approval from the Office of Administrative Laws (OAL) in November 2004. Beginning January 1, 2005, electronic submittal of these items and a portable data format (PDF) copy of the full report is being extended to include landfill programs. These regulations also added new data dictionaries (the format for electronic data submittals) to California Code of Regulations, Title 27, in coordination with existing Cal/EPA Unified Program data dictionaries.

8. Beginning July 1, 2005, submittal of a complete copy of a report in PDF format into the Geotracker database will replace the paper copy requirements of these reports. The electronic copy is intended to replace the need for a paper copy and will be used for all public information requests, regulatory review, and compliance/enforcement activities.

Basis for Finding Nos. 7 & 8:

The WDR includes the State Water Resources Control Board (SWRCB) regulations requiring that Dischargers comply with requirements for Electronic Submittal of Information (ESI) for soil and ground water of underground storage tank (UST) cases and non-UST cleanup programs, including Spills-Leaks-Investigations-Cleanups (SLIC) sites, Department of Defense (DoD) sites, and Land Disposal programs. For several years, parties responsible for cleanup of leaks from underground storage tanks (USTs) have been required to submit ground water analytical data, surveyed locations of monitoring wells, and other data to the Geotracker database over the Internet.

Geotracker is a database and geographic information system (GIS) that provides online access to environmental data. Geotracker allows users to obtain graphical and textual information about any LUFT, UST, Above Ground Tank (AGT), SLIC, DoD, and Landfill site by entering a site address, partial site address, or site name. Other information that can be graphically displayed as a layer on, Geotracker includes highways and roads, topographic maps, surface water boundaries, watershed boundaries, groundwater basins, and hydrologic vulnerability areas. It tracks regulatory data about

leaking underground fuel tanks (LUFT), DoD, SLIC, and Landfill sites. Geotracker uses commercially available software to allow users to access data over the Internet.

Beginning July 1, 2005, Dischargers are required to submit a complete copy of reports in PDF format into the on-line Geotracker database. The electronic information in Geotracker will be used for all public information requests, regulatory review, and compliance / enforcement activities previously submitted in paper format.

Pursuant to CCR Title 23, ~~section~~ §3895(b), the agency may require the Discharger(s) to submit reports in an "alternative form":

> "(b) In addition to the electronic submittal of reports required pursuant to this Chapter, a regulatory agency may require the submittal of a report, or portions thereof, in diskette, compact disc or other form if the agency determines that the alternative form is necessary. The burden, including cost, of these alternative forms shall bear a reasonable relationship to the need for alternative forms and benefits to be obtained from the alternative form."

The Regional Board cannot effectively review electronic versions of oversized figures and tables greater than 8 ½ by 11 inches in size. In addition, the Regional Board is not equipped to provide paper copies of oversized submittals or make electronic copies of intermittent voluminous electronic documents available for public review.

Tentative WDR Order No. R9-2005-0183 requires the Discharger to continue to provide the Regional Board with complete paper copies of all technical submittals. This will allow the Regional Board time to acquire the technical capability to process and manage electronic data. Eventually, the electronic reporting requirements will facilitate public reviews and reduce paper submittals to the Regional Board.

Finding No. 9 to 13

9. Sections 25143.1.5 and 25450.7 of the California Health and Safety Code were amended in 2004 specifying conditions whereby treated wood waste may be discharged into a composite lined portion of a solid waste landfill unit equipped with an engineered alternative liner and leachate collection and removal system.

10. "Treated wood" means wood that has been treated with a chemical preservative for the purposes of protecting wood against insects, microorganisms, fungi, and other environmental conditions that can lead to decay of the wood, and the chemical preservative is registered pursuant to the Federal Insecticide, Fungicide, and Rodenticide Act (7 U.S.C. Sec. 136 and following). This may include but is not limited to waste wood that has been treated with chromated copper arsenate (CCA), pentachlorophenol, creosote, acid copper chromate (ACC), ammonical cooper arsenate (ACA), ammonical copper zinc arsenate (ACZA), or chromated zinc chloride (CZC).

11. Treated wood waste, previously treated with a preservative, that has been removed from electric, gas, or telephone service, does not include wood waste that is subject to regulation as a hazardous waste under the federal act.

12. Treated wood must be managed to ensure consistency with sections 25143.1.5 and 25150.7 of the California Health and Safety Code (HSC) and if a verified release is detected from the cell unit where treated wood is disposed, the disposal of treated wood will be terminated at the unit with the verified release until corrective action ceases the release.

13. Except as provided in HSC section 25157.8(c), after January 1, 1999, no person shall dispose of waste that contains total lead in excess of 350 parts per million, copper in excess of 2,500 parts per million, or nickel in excess of 2000 parts per million to land at other than a Class I hazardous waste disposal facility, unless the waste is disposed of at the site of generation pursuant to express approval of the regional water quality control board prior to August 21, 1998.

Basis for Finding No. 9 to 13

CCR Title 27 [~~section~~ §21090(a)(1)] allows Dischargers to incorporate certain wastes into the construction of the foundation layer for engineered landfill cover systems:

> "Foundation Layer…These materials may be soil, contaminated soil, incinerator ash, or other waste materials, provided that such materials have appropriate engineering properties to be used for a foundation la~~t~~yer…"

However, the legislature amended the Health and Safety Code (HSC §§~~sections~~ 25143.1.5, 25150.7 and 25157.8) to place restrictions upon certain types of wastes to be discharged at municipal (Class III) landfill. These restrictions apply to metals, contaminated soils, and treated wood wastes (TWW).

Metals Contaminated Soils (HSC section 25157.8)

(a) Except as provided in subdivision (c), on and after January 1, 1999, no person shall dispose waste that contains total lead in excess of 350 parts per million, copper in excess of 2,500 parts per million, or nickel in excess of 2,000 parts per million to land at other than a Class I hazardous waste disposal facility, unless the waste is disposed of at the site of generation pursuant to express approval of the regional water quality control board granted prior to August 21, 1998, and the waste was classified as nonhazardous at that time, until both of the following occur:

(1) The appropriate California regional water quality control board has amended the solid waste facility's waste discharge requirements to specifically allow disposal of the waste.

(2) The appropriate local enforcement agency has revised the solid waste facility permit of the facility to specifically allow this disposal pursuant to Chapter 3 (commencing with Section 44001) of Part 4 of Division 30 of the Public Resources Code.

(b) Except as provided in subdivision (c), no person shall dispose any material to land at other than a Class I hazardous waste disposal facility, if the material is regulated as a hazardous waste by the department, until all of the following have occurred:

(1) The department has issued a variance pursuant to ~~Section~~ § 25143 to specifically allow disposal of the material to a disposal facility other than a Class I hazardous waste disposal facility,

(2) The appropriate California regional water quality control board has amended the solid waste facility's waste discharge requirements to specifically allow disposal of the material.

(3) The appropriate local enforcement agency has revised the solid waste facility permit of the facility at which the material is proposed to be disposed, to specifically allow this disposal pursuant to Chapter 3 (commencing with Section 44001) of Part 4 of Division 30 of the Public Resources Code.

Treated Wood Wastes (HSC sections 25143.1.5 and 25150.7)

Imposes restrictions on the management and disposal of treated wood wastes (TWW). The Anza Landfill does not meet the minimum requirements (i.e., having a composite lined waste management unit) to allow disposal of TTW under the current statutory requirements. As a result, in June 2005 this Regional Board adopted Addendum No. 2 to Order No. 93-86 prohibiting the County of Riverside from accepting TWW for disposal at the Anza Landfill.

These findings define statutory restrictions on the disposal of metals contaminated wastes and TWW. These statutory restrictions support the continuation of the prohibition against the discharge of such wastes, even within the foundation layer of the engineered cover system, at the Anza Landfill. The discharge prohibition against the disposal of qualifying metals contaminated wastes and TWW are included in the tentative Order under PROHIBITIONS (sections A.12, A.13, and A.14).

Finding No. 14

14. On August 16, 1993, this Regional Board amended Order No. 87-53 by adopting Regional Board Order No. 93-86, **Waste Discharge Requirements Amendment for all MSW Landfills in this Region, to Implement State Water Board Resolution**

No. 93-62, Adopted June 17, 1993, as State Policy for Water Quality Control Under Section 13140 of the Water Code. Order No. 93-86 updated waste discharge requirements for all landfills in this region that received wastes after October 9, 1991, which includes the Anza Landfill. By incorporating regulations contained in the Code of Federal Regulations, Title 40, (CFR 40), Part 258, Order No. 93-86 brought the affected landfills into compliance with both State and Federal Regulations.

Basis for Finding No. 14

The Anza Landfill is a municipal solid waste (MSW) landfill (Class III waste management unit) that ceased receiving waste on May 8, 1999. The facility is subject to both State (California Code of Regulations – CCR Title 27) and Federal (Code of Federal Regulations – CFR, Title 40, Part 258) requirements regulating municipal solid waste landfills. In 1993, the State Water Resources Control Board (SWRCB) adopted Resolution No. 93-62 and 93-100. Resolution No. 93-62 requires each Regional Water Board to implement waste discharge requirements (WDRs) for discharges at MSW landfills under both the Chapter 15 (now CCR Title 27 – as of 1997) and those applicable provisions of the ~~federal~~ Federal MSW regulations that are necessary to protect water quality.

On August 16, 1993, the California Regional Water Quality Control Board – San Diego Region adopted General Order 93-86*: "Waste Discharge Requirement Amendment for all MSW Landfills in this Region, to Implement State Water Board Resolution No. 93-62, adopted June 17, 1993,"* as State Policy for Water Quality Control under Section 13140 of the Water Code. This interim measure was taken to ensure that all active MSW landfills would be required to comply with the existing Federal requirements for MSW landfills. As the Regional Board revises WDRs for each landfill currently regulated under Order 93-86, the existing State and Federal requirements are incorporated into the new Order. The revised WDRs supercede~~s~~ existing requirements for the affected facility pursuant to Order 93-86 and enrollment of each affected facility in Order 93-86 is terminated upon adoption of revised WDRs.

Tentative Order R9-2005-0183 contains both State and Federal MSW landfill requirements for closure and post-closure maintenance of the Anza Landfill. This is the first complete revision of WDRs for the Anza Landfill since the adoption of Order 93-86 and SWRCB Resolution No. 93-62. If adopted, tentative Order No. R9-2005-0183 would supercede Order No. 87-53 (and addenda thereto) and terminate enrollment of the Anza Landfill in Order No. 93-86 (and addenda thereto).

In addition, tentative Order No. R9-2005-0183 would, if adopted, approve the closure and post-closure maintenance plan, the engineered alternative final cover and modify the monitoring and report program to incorporate the requirements contained in 40 CFR 258, "Subtitle D".

Finding No. 16:

16. The JTD indicates that there are 110 domestic supply wells located within one mile of the landfill. Of the 110 wells, 29 domestic supply wells located within one mile are in a direction that is down hydraulic gradient (downgradient) from the landfill. The depth to ground water in these wells ranges from 160 feet below ground surface (bgs) to 415 feet bgs, with an average depth of 275 feet. The Riverside County Industrial Waste Management Department (IWMD) does not currently monitor the deep bedrock aquifer. However, due to the potential impacts from the landfill, and the presence of downgradient drinking water wells, monitoring of the bedrock aquifer is deemed necessary and appropriate.

Basis for Finding No. 16:

The Anza Landfill is an unlined, Class III municipal solid waste (MSW) landfill. The Landfill is underlain by a sequence (from top to bottom) comprised of: coarse-grained silty sands, decomposing granite, and fractured bedrock. Ground water occurs as a perched aquifer between approximately 20 to 60 feet below ground surface (bgs), and then again as a deep bedrock aquifer from approximately 150 and 400 feet bgs.

The landfill does not contain an engineered liner system (unlined unit), including a leachate collection and removal system (LCRS) to capture and remove leachate, to preclude the leaking (discharge) of waste related pollutants into ground water. The current list of constituents of concern (COCs) provided by the Discharger (see Attachment No. 2 of Attachment No. 3 (M&RP) of the EOSR) is extensive, containing volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), metals, and diesel constituents. Past ground water monitoring data indicate that a release of landfill related constituents into the perched aquifer has occurred, implying that there is a probability that the deep aquifer is threatened or has already been adversely impacted by pollutants from the landfill.

Prior to the 2001 and subsequent submittals of the Joint Technical Document (JTD) for Closure and Post-Closure Maintenance of the Anza Landfill, the Regional Board was unaware of the number of domestic supply wells located within a one-mile radius of the Landfill. The potential exists that at least some of the 29-downgradient supply wells have been impacted by the release from the Landfill. Currently, the Discharger only monitors the perched aquifer, so the impacts to the deep aquifer are unknown at this time. Order No. R9-2005-0183 and the M&RP contained therein require the Discharger to submit a workplan to the Regional Board outlining the necessary tasks to enhance the ground water monitoring network to include the monitoring of the perched and the deeper bedrock aquifers.

In the event that monitoring results indicate that a release of constituents into the bedrock aquifer has occurred, the Discharger will be required to implement Federal assessment monitoring (40 CFR, §section 258.54); and State evaluation monitoring and corrective action monitoring [as required in CCR Title 27, §§Sections 20245 and 20430].

Finding No. 17:

17. Until the construction of the landfill cover system is complete, the discharge of pollutants into ground water could cause the long-term loss of designated/actual municipal and domestic (MUN), and agricultural (ACG) beneficial uses of ground water, the Anza Landfill shall be rated as Threat to Water Quality (TTWQ) category "1" in accordance with CCR Title 23 §section 2200. The complexity (CPLX) ranking is based upon the type of facility. For Class III landfills, the complexity ranking is category "B".

    After the construction of the engineered cover system is complete and the final CQA Report has been submitted to the Regional Board, the threat to designated/actual municipal and domestic (MUN,) and agricultural (AGR) beneficial uses of groundwater should be much reduced in probability and severity. The additional protection to water quality created by the engineered landfill cover system justifies a reduction of the Threat to Water Quality (TTWQ) category "2" in accordance with CCR Title 23, §section 2200. The complexity (CPLX) ranking remains at category "B" as this is the ranking assigned to Class III landfills.

Basis for Finding No. 17:

While the Anza Landfill does not have the engineered landfill cover system, there is a higher propensity for the infiltration of water (i.e., ponded surface water, rainfall and snow) through the wastes resulting in discharges of pollutants into ground water that may cause long-term loss of designated municipal and domestic (MUN), and agricultural (AGR) beneficial uses of ground water. As a result of the elevated threat to water quality and existing beneficial uses of ground water, the Regional Board staff recommends that the Anza landfill be rated as Threat to Water Quality (TTWQ) category "1" in accordance with CCR Title 23, section §2200. The complexity (CPLX) ranking is based upon the type of facility. For Class III landfills, the complexity ranking is category "B".

When construction of the engineered cover system is completed, the infiltration of surface water/precipitation through the wastes should be much reduced. Reduced infiltration is expected to result in less chance for mobilizing (i.e., by solubilizing) waste constituents to pollute ground water resources. As a result of the construction of the engineered cover system, the probability of future release(s) of waste constituents and threat of pollution to groundwater resources should also be reduced over the long term. The reduced threat to water quality is reflected in the recommendation that the TTWQ ranking for the Anza Landfill be reduced as follows:

1. Threat to Water Quality Ranking of Category "2" – For those discharges of waste that could impair the designated beneficial uses of the receiving water, cause short-term violations of water quality objectives, cause secondary drinking water standards to be violated, or cause a nuisance.

2. Complexity Ranking at Category "B" – Any Discharger not included above that has physical, chemical, or biological treatment systems (except for septic systems with subsurface disposal), or any Class II or Class III waste management units.

Finding No. 35 & 36:

35. The County of Riverside shall establish financial assurances in the amount of **$12,663.156**. The financial assurances shall cover the costs estimated for closure, post-closure maintenance, and corrective actions for foreseeable releases from the waste management unit at the Anza Landfill:

Task	Estimated Cost	Source of Cost Estimate
Closure	$1,222,286	JTD (2002), Volume 1, Page 28
Post-Closure Maintenance and Monitoring	$1,440,870	JTD (2002), Volume 2, Appendix 12, Page 10
Corrective Actions for reasonable foreseeable releases	$10,000,000	JTD (2002), Volume 1, Page 29
Total =	**$12,663,156**	

The County of Riverside shall update the financial assurances, as necessary to ensure that adequate funds are available~~,~~ to cover the cost of closure, post-closure monitoring and maintenance, and corrective actions in response to a reasonably foreseeable release from the waste management unit at the Anza Landfill.

36. Funds associated with the financial assurances established pursuant to Finding No. 35 shall be made directly available to the Regional Board when the Regional Board finds that the County of Riverside has failed or refuses to implement closure, post-closure monitoring and maintenance, or corrective actions in response to a release from the waste management unit at the Anza Landfill.

Basis for Finding No. 35 & 36:

The California Code of Regulations (CCR) Title 27, Chapter 6 requires that operators of solid waste facilities provide financial assurances to the State. The financial assurances shall be provided to the California Integrated Waste Management Board (CIWMB) or the Regional Board for: closure (CCR Title 27, ~~section~~ §22207), post-closure maintenance (CCR Title 27, ~~section~~ §22212), and for corrective actions associated with known or

reasonably foreseeable releases from the waste management unit (CCR Title 27, ~~section~~ §22222). For you reference, all state regulatory citations cited in the tentative Order are provided in Attachment No. 10 to this agenda item.

A. Financial Assurances for Closure and Post-Closure

The County of Riverside provided the CIWMB with an escrow agreement for closure to comply with the requirements of CCR Title 27, ~~section~~ §22207 and a pledge of revenue agreement to comply with post-closure funding requirements of CCT Title 27, ~~section~~ §22212 (see Attachment 10 to the agenda item).

The existing financial assurances do not allow the Regional Board direct access to funds that may be necessary to complete closure and post-closure tasks, in the event that the County of Riverside is unable or unwilling to do so in the future.

B. Financial Assurances for Corrective Actions

Finding No. 35 establishes the minimum level of financial assurances required for the Anza Landfill. The amounts of the required financial assurances were provided by the County of Riverside in previous estimates for corrective action costs provided in April 2003 and the most recent JTD (dated July 2003).

In the absence of actions by the County of Riverside to implement closure, post-closure maintenance or corrective actions, the Regional Board would require direct access to funding to fulfill its statutory role and effectively implement measures for the protection of water quality. Direct access to funding should be accomplished through financial assurances that are structured to allow the Regional Board to access funds, after a finding that the County of Riverside is unable or unwilling to implement the required actions, to complete closure, post-closure maintenance or corrective actions for the protection of water quality.

Provision No. 5 of tentative Order R9-2005-0183 requires the County of Riverside to comply with the financial assurance requirements of CCR Title 27 and provide financial assurances that are acceptable to the Regional Board. The County would be required to provide acceptable Financial Assurances for closure, post-closure and corrective actions within a period of 1 year from the date the Regional Board adopts tentative Order No. R9-2005-0183.

Reporting Requirement E.11:

11. MONITORING AND REPORTING PROGRAM

> The Discharger shall comply with the attached **Monitoring and Reporting Program No. R9-2005-0183**.

Basis for Reporting Requirement E.11 and Monitoring and Reporting Program No. R9-2005-0183:

GROUND WATER MONITORING AND CORRECTIVE ACTIONS

The County of Riverside is required to comply with the monitoring requirements contained in Title 40, Code of Federal Regulations (40 CFR 258). Monitoring and Reporting Program No. R9-2005-0183 updates the monitoring program to incorporate the Federal and State requirements necessary to bring the Anza Landfill into compliance with the State and Federal ground water monitoring requirements.

The Anza Landfill has released waste constituents to the groundwater. The release from the Unit has been detected in three monitoring wells (e.g., A-3, A-5, A-6). These affected monitoring wells are in an Assessment/Corrective Action Monitoring Program. The remaining ground water monitoring network consists of one background well (A-2A) and two compliance wells (A-1, A-4). These ground water monitoring wells are in detection monitoring. For units that do not have indication of a release, a detection-monitoring program (DMP) is an appropriate program for the purpose of detecting, characterizing and responding to a release. The state and federal requirements, though similar in nature, are outlined separately below.

A.1 *State Requirements – Detection Monitoring*

CCR Title 27 ~~section~~ §20415(a)-(b), and ~~section~~ §20420 requires the following when implementing a DMP:

- A sufficient number of monitoring points and background monitoring points installed at appropriate locations and depths to yield ground water samples from the uppermost aquifer that represent the quality of ground water that has not been affected by a release from the unit.

- A proposed list of monitoring parameters (MPars) for each medium (surface water, ground water and the unsaturated zone) which shall include the physical parameters, hazardous constituents, waste constituents, and reaction products that provide a reliable indication of a release from the Unit, into that medium.

- Routine monitoring (frequency to be determined by the Regional Board) at each monitoring point and background monitoring point, for the MPars listed in the waste discharge requirements (WDRs) for that Unit.

- Periodic (every five years) monitoring of Constituents of Concern (COC), as specified in the WDRs to determine whether there is measurably significant evidence of a release.

- Comply with electronic reporting requirements of CCR Title 23, § 3890 *et seq.*

A.2 *State Requirements – Evaluation Monitoring Program (EMP) and Corrective Action Program (CAP)*

CCR Title 27 §20425 requires that Dischargers complete the following tasks when implementing an EMP:

- Delineate the release.
- Update the Engineering Feasibility Study (EFS) for corrective action.
- Amend the Report of Waste Discharge with including information on the delineation of the release, proposed water standards, a detailed description of corrective measures, and a plan for water quality monitoring to demonstrate the effectiveness of the proposed corrective actions.
- Comply with electronic reporting requirements of CCR Title 23, § 3890 *et seq.*

CCR Title 27 §20430 requires that Dischargers complete the following tasks when implementing a CAP:

- Implement corrective action measures that ensure that COCs achieve their respective concentration limits at all Monitoring Points and throughout the zone affected by the release, including any portions thereof that extend beyond the facility boundary, by removing the waste constituents or treating them in place.
- Implement a water quality-monitoring program to demonstrate the effectiveness of the corrective action program.
- Corrective action measures shall be initiated and completed by the Discharger within a period of time specified in the WDRs.

B.1 *Federal Requirements – Detection Monitoring*

40 CFR §~~Part~~ 258.51 requires that Dischargers complete the following tasks ~~the following~~ when implementing a detection monitoring program at the Unit:

- A sufficient number of monitoring points and background monitoring points installed at appropriate locations and depths to yield ground water

samples from the uppermost aquifer that represent the quality of ground water that has not been affected by a release from the unit.

- The monitoring of all Appendix I constituents, unless the Regional Board establishes an alternative list of inorganic indicator parameters.

- A monitoring frequency of semi-annually throughout the active life of the Unit, as well as the post-closure period.

B.2 *Federal Requirements – Assessment Monitoring*

40 CFR §258.55 requires that Dischargers complete the following tasks when implementing an assessment-monitoring program at the Unit:

- Within 90 days of indication of a release from the Unit, the Discharger must sample and analyze ground water for all constituents identified in Appendix II. For any constituent detected, a minimum of four independent samples from each well must be collected and analyzed to determine background concentrations.

- Establish ground water protection standards for all constituents detected.

- Characterize the nature and extent (horizontal and vertical) of the release by installing additional monitoring wells, if necessary.

- Initiate an assessment of corrective measures.

B.3 *Federal Requirements – Corrective Action Program*

40 CFR §§258.56, 258.57 and 258.58 require that Dischargers complete the following tasks when implementing a corrective action program at the Unit:

- Assessment of corrective measures to evaluate the range of remedial actions available to correct the effects from a release of waste constituents.

- Selection of a remedy that will meet the requirements of the applicable Federal requirements and establish a schedule for obtaining compliance with the applicable water quality standards.

- Implementation of the selected remedy pursuant to a schedule established for the selected remedy.

- ~~Indicate~~ Assess and report upon the effectiveness of the corrective action remedy.

- Demonstrate compliance with ground water protection standards.
- Implement the corrective action remedy.
- Take any interim measures necessary to ensure the protection of human health and the environment.

C. *Intra-well Monitoring Approach*

The ground water quality at the Anza Landfill is good (i.e., naturally occurring Chloride, Sulfate and Total Dissolved Solids at concentrations near or below Basin Plan water quality objectives) in the fractured bedrock aquifer at the site. The following table depicts the approximate background concentrations for monitoring well A-2A for naturally occurring monitoring parameters:

Constituent	Water Quality Objectives	Well A-2A
Total Dissolved Solids	**500 mg/l**	**654 mg/l (+/- 109 mg/l)**
Sulfate	**250 mg/l**	**26 mg/l (+/- 4 mg/l)**
Chloride	**250 mg/l**	**191 mg/l (+/- 36 mg/l)**

Average concentrations of ~~well-specific data~~ for three constituents from the ~~month-to-month~~ monitoring period during 1999 to 2005 (the past ~~5~~ 6 years). Legend: the value on the top line for each constituent is the average concentration, and the (+/-) value below it is the standard deviation of data reported for that well during the specified time period.

Ground water concentrations for a given constituent may vary greatly from one well to another, but may not be indicative of a release at the site. In order to distinguish between spatial/temporal variability in water quality and an actual release from the site, the intra-well analysis shall be used at all background and monitoring points to analyze each of the monitoring parameters listed in the Order. The intra-well analysis shall be used to compare the results of the current sampling data, of a given monitoring parameter, with the results of at least the previous 16 sampling events (*i.e.*, 8 years at a semi-annual monitoring frequency), for the specific monitoring parameter in the affected well. Using this approach allows the Discharger to establish site-specific background concentration levels, and the Regional Board to determine whether a measurably significant increase in the concentration of a particular constituent has occurred in a given well.

Together, tentative Order R9-2005-0183 and Monitoring and Reporting Program No. R9-2005-0183 implement the applicable State and Federal regulatory requirements for closure, post-closure monitoring and maintenance, and implementation of corrective

actions for the Anza Landfill. The applicable State and Federal requirements for water quality monitoring and corrective actions may be found in Attachment No. 4 (State Regulatory References) and No. 7 (Federal Regulatory References) to the Executive Officer Summary Report.

Monitoring and Reporting Program (MRP) – Ground water Monitoring Finding No. 11:

11. In the absence of an alternative ground water monitoring protocol required by the State, the Federal regulations required the Discharger to monitor all ground water-monitoring wells for all waste constituents listed in Appendix II to 40 CFR, part 258, §~~section~~ 258.55(b). In order to focus the scope, and reduce the costs of monitoring for waste constituents identified as ground water monitoring MPars; this monitoring program requires the Discharger to:

    (a) analyze for volatile organic constituents listed in Appendix I to 40 CFR, Part 258; and

    (b) allows the Discharger to use surrogate species (*i.e.*, pH, Total Dissolved Solids (TDS), Chloride (CL), sulfate (SO_4), and nitrate (NO_3) (see monitoring program section C.3 below) to monitor ground water at the Unit for a release of metals listed in Appendices I and II to 40 CFR, Part 258;

    (c) gives the Discharger the option of choosing to analyze soil vapor samples from a soil vapor-monitoring network (soil-gas probes) or an active landfill gas (LFG) control system at the Anza landfill. Analytical results from soil vapor (or LFG) samples may be used to identify additional specific volatile organic constituents (*i.e.*, COCs), listed in Appendix II to 40 CFR, Part 258, that are actually being generated by the wastes within the Anza Landfill. All additional volatile organic constituents listed in Appendix II to 40 CFR, part 258, that have been detected and verified by retest of vapor samples, collected from properly constructed and maintained soil vapor monitoring probes or an active landfill gas (LFG) control system, may be used to augment the ground water MPars for the Evaluation Monitoring Program.

Basis for MRP Ground water Monitoring Finding No. 11:

The Anza Landfill is an unlined waste management unit (landfill). Since the Anza Landfill does not contain a leachate collection and removal system (LCRS), it is not possible to rely upon annual leachate monitoring results to establish and maintain a comprehensive facility-specific constituent of concern (COCs) list.

In the absence of an alternative ground water monitoring protocol established by the State [40 CFR ~~section~~ §258.55(b)], the Federal Assessment Monitoring regulations require the Discharger to monitor all ground water-monitoring wells for all waste constituents listed

in Appendix II to 40 CFR, Part 258, ~~section~~ §258.55(b). In order to narrow the scope of the waste constituents identified as ground water monitoring MPars, this monitoring program requires the Discharger to:

(a) comply with the minimum requirements to analyze for volatile organic constituents listed in Appendix I to 40 CFR, Part 258;

(b) it allows the Discharger to use surrogate species (*i.e.*, pH, Total Dissolved Solids (TDS), Chloride (Cl), sulfate (SO_4) and nitrate (NO_3) (see monitoring program section C.3 below) established by the State to monitor groundwater at the Unit for a release of metals listed in Appendices I and II to 40 CFR, Part 258; and

(c) and gives the Discharger the option to analyze site-specific soil vapor samples, collected from a soil vapor monitoring network (soil-gas probes) or an active landfill gas (LFG) control system at the Anza Landfill. Analytical results from soil vapor (or LFG) samples may be used to identify additional specific volatile organic constituents (*i.e.*, COCs), listed in Appendix II to 40 CFR, Part 258, that are actually being generated by the wastes within the Anza Landfill. All additional volatile organic constituents listed in Appendix II to 40 CFR, Part ~~259~~ 258 that have been detected and verified by retest of vapor samples, collected from properly constructed and maintained soil vapor monitoring probes or an active landfill gas (LFG) control system, may be used to augment the ground water MPars for the Evaluation Monitoring program. The alternative to this option is to include all volatile organic constituents, listed in Appendix II to 40 CFR, Part 258, as MPars for ground water.

The use of soil vapor (or LFG) samples to identify specific volatile organic constituents, and thereby reduce the volatile organic constituents listed in Appendix II to 40 CFR, part 258 and identified as MPars, complies with the requirements of sections C.10 and D.1 of Monitoring and Reporting Program No. R9-2005-0183.

RECOMMENDATIONS

The Regional Board recommends adoption of tentative Order No. R9-2005-0183 and tentative Monitoring and Reporting Program No. R9-2005-0183.